Tinghui Zhu

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Education

Fudan University 2022/09 – present
Master of Science in Computer Science Shanghai, China
Fudan University 2018/09 – 2022/06
Bachelor of Science in Computer Science Shanghai, China

Experiences

Research Intern 2023/07 – 2024/02
OSU NLP Group, supervised by Prof. Yu Su Remote
NLP Research Intern 2022/06 – 2023/03
Meituan NLU team, supervised by Rui Xie Shanghai, China
Graduate Researcher 2022/09 – present
Knowledge Works Research Laboratory @ Fudan University, supervised by Yanghua Xiao Shanghai, China

Publications

1. *TravelPlanner: A Benchmark for Real-World Planning with Language Agents*
   Jian Xie*, Kai Zhang*, Jiangjie Chen, **Tinghui Zhu**, Renze Lou, Yuandong Tian , Yanghua Xiao, Yu Su
2. *Deductive Beam Search: Decoding Deducible Rationale for Chain-of-Thought Reasoning*
   Tinghui Zhu*, Kai Zhang*, Jian Xie, Yu Su
3. *Towards Visual Taxonomy Expansion* [ACMMM 23]
   Tinghui Zhu, Jingping Liu, Haiyun Jiang, Yanghua Xiao, Zongyu Wang, Rui Xie, Yunsen Xian
4. *SLR:A Million-Scale Comprehensive Crossword Dataset for Simultaneous Learning and Reasoning*
   Chao Wang*, **Tinghui Zhu***, Jingping Liu, Yanghua Xiao
5. *End-to-end Entity Linking with Hierarchical Reinforcement Learning* [AAAI 23]
   Lihan Chen, **Tinghui Zhu**, Jingping Liu, Jiaqing Liang, Yanghua Xiao

Awards

- National Scholarship for Graduate Excellence 2023/10

Research Experience

Deductive Beam Search 2023/07 – 2024/02

- Integrated CoT with step-wise beam search, balancing exploration and exploitation in reasoning tasks.
- Constrained the beam search with the principle of deductive reasoning. Proposed a scalable and labor-free data construction method, synthesizing diverse and fine-grained reasoning errors and trained a robuset deductive verifier.
- Evaluated the decoding strategy on various model scales and reasoning tasks, proving the effectiveness of the method.

Multimodal Taxonomy Expansion 2022/06 – 2023/03

- Enhanced the semantic understanding of given terms by incorporating term images. Facilitated the differentiation between prototypical hypernyms and actual hypernyms and improved the comprehension of unseen terms.
- Implemented prototypical contrastive clustering to generate high-level visual semantics for hypernyms that lack visual features. Mitigated the common issue of collapsing in deep clustering algorithms. Produced distinctive visual clusters that represent unique semantics distinct from their textual counterparts.

Clue Understanding 2022/01 – 2022/05

- Developed a novel QA benchmark using clues in crossword puzzles, aiming to assess proficiency in understanding ambiguous and concise natural language, as well as evaluating knowledge acquisition and reasoning capabilities.
- Evaluated various baseline models, including on the dataset. The outcomes revealed the limitations of existing natural language processing techniques, even generative language model T5, in effectively solving our proposed dataset.